Team Meeting #7, October 8th 2020

General Minutes

Output shaft max diameter is 4mm, preferably, 3mm

Potential ways to construct orbital shaving platforms

- Jett had the idea to create a "train wheel design"
- Ryan proposed using a rotational motor to induce grinding/sanding and a linear actuator to move the spinning output shaft forwards and backwards
- Maclean proposed a channel lock and a pulsed servo output to control the random orbital motion
    - 10-15 degree servo motion, output shaft would push through the servo
    - https://www.parallax.com/sites/default/files/downloads/900-00005-Standard-Servo-Product-Documentation-v2.2.pdf
    - Servos are perpendicular to the rod to position the output shaft
    - Taking apart miniature sander and repurposing components
    - https://www.amazon.com/GALAX-PRO-13000OPM-Collector-Polishing/dp/B07RX6N12J/ref=sr_1_4_sspa?dchild=1&keywords=mini+orbital+sander&qid=1602183855&sr=8-4-spons&psc=1&spLa=ZW5jcnlwdGVkUXVhbGlmaWVyPUExMzFSTjhPQk5WNDFQJmVuY3J5cHRlZElkPUEwMjEyMTQyMkxJN0NOQlVRUTE2OSZlbmNyeXB0ZWRBZElkPUEwMDQxMTQ1M0kyQk9ET1NJUFM3RiZ3aWRnZXROYW1lPXNwX2F0ZiZhY3Rpb249Y2xpY2tSZWRpcmVjdCZkb05vdExvZ0NsaWNrPXRydWU=
- Dr. Perry proposed linear shaft actuation in handle has been decided, we could potentially use a second linear actuator and a wedge to introduce slight vertical movements
    - Friction and wear may be an issue
    - Rod flexing is an issue

Purchasing Directions- Lucas will act as a purchasing agent

- Jett organized motor, battery, ESC, Trinket, and potentiometer purchasing through Amazon

BLDC Motor:

- https://www.amazon.com/DYS-1000KV-Brushless-Multicopters-Helicopter/dp/B0752D1JCC/ref=as_li_ss_tl?keywords=D2830&qid=1581602467&sr=8-1&linkCode=sl1&tag=howto045-20&linkId=5c3cb29e321b0dc75badae0649203351&language=en_US

30A ESC:

- https://www.amazon.com/RC-Brushless-Electric-Controller-bullet/dp/B071GRSFBD/ref=as_li_ss_tl?ie=UTF8&qid=1549129228&sr=8-5&keywords=esc+30a&linkCode=sl1&tag=howto045-20&linkId=e1a4f6875272396432e2554f55ee0113&language=en_US

1500mAh 11.1V Battery:

- https://www.amazon.com/dp/B07PPGKG21/ref=as_li_ss_tl?pd_rd_i=B07PPGKG21&pd_rd_w=aRI4S&pf_rd_p=45a72588-80f7-4414-9851-786f6c16d42b&pd_rd_wg=i9a7w&pf_rd_r=PA72B1NW4TZYMHJ8EG0M&pd_rd_r=0de0c79a-78d9-453e-ae5f-f6a61505b228&spLa=ZW5jcnlwdGVkUXVhbGlmaWVyPUEzSFNQUE1DRjVWNlNRJmVuY3J5cHRlZElkPUEwNDk3MDA4M08zNDY2RE9UNlY3NyZlbmNyeXB0ZWRBZElkPUEwMTgwNTE3MkVZNzRTUFg3WVJEVSZ3aWRnZXROYW1lPXNwX2RldGFpbCZhY3Rpb249Y2xpY2tSZWRpcmVjdCZkb05vdExvZ0NsaWNrPXRydWU&th=1&linkCode=sl1&tag=howto045-20&linkId=a764a35f69ecac60004706a4c6848af6&language=en_US

LiPo Battery Charger:

- https://www.amazon.com/HTRC-Battery-Balancer-Charger-7-4-11-1V/dp/B08HN5DZ5Y/ref=pd_bxgy_2/136-3559023-6466101?_encoding=UTF8&pd_rd_i=B073WSDCZM&pd_rd_r=cfc428a0-d27b-44a1-af00-157d667a9828&pd_rd_w=Kc4lA&pd_rd_wg=6i4sH&pf_rd_p=ce6c479b-ef53-49a6-845b-bbbf35c28dd3&pf_rd_r=C5KW04WJBPB1Z70KFM8X&refRID=C5KW04WJBPB1Z70KFM8X&th=1

Potentiometer Control Knob

- https://www.amazon.com/TWTADE-Potentiometer-Single-Variable-Aluminum/dp/B07DHGR3ST/ref=as_li_ss_tl?keywords=100k+potentiometer&qid=1581684586&s=industrial&sr=1-5&linkCode=sl1&tag=howto045-20&linkId=f4b45ac71f9d03b148dcf2b597cebfbe&language=en_US

Adafruit Trinket 5V

- https://www.amazon.com/Adafruit-Trinket-Microcontroller-Logic-ADA1501/dp/B00K9THV04/ref=sr_1_1?dchild=1&keywords=adafruit+trinket+5V&qid=1602038599&sr=8-1

ABS Filament

- https://www.amazon.com/SUNLU-Printer-Filament-Dimensional-Accuracy/dp/B07XF5KM74/ref=sr_1_3?dchild=1&keywords=ABS+filament&qid=1602038753&sr=8-3

PLA Filament (This is the brand I use with my printer and it works great)

- https://www.amazon.com/HATCHBOX-3D-Filament-Dimensional-Accuracy/dp/B00J0ECR5I/ref=sxts_sxwds-bia-wc-drs-ajax1_0?cv_ct_cx=PLA+filament&dchild=1&keywords=PLA+filament&pd_rd_i=B00J0ECR5I&pd_rd_r=11aff322-7242-46a1-854b-50d928b4bb10&pd_rd_w=bKVHP&pd_rd_wg=WO267&pf_rd_p=037ca9fd-790e-4a16-836b-14da89aed20e&pf_rd_r=ZG7JVPTC02WV6RR4WC82&psc=1&qid=1602038819&sr=1-1-25b07e09-600a-4f0d-816e-b06387f8bcf1

    - Ryan organized a linear actuator for purchase https://www.amazon.com/ZooTek-Mounting-Bracket-Actuator-Maximum/dp/B086D5RZ93/ref=sr_1_4?crid=1KDKORG5NTCGK&dchild=1&keywords=linear+actuator+2+inch&qid=1602197743&sprefix=linear+actuator+2%2Caps%2C257&sr=8-4
    - Maclean looked at linear solenoids and servos https://www.actronic-solutions.de/linear-solenoids.html

      https://www.digikey.com/catalog/en/partgroup/standard-dc-servo/488

Action Items

- **We will meet on Monday evening**
- **Lucas, Jett, and Ryan → Research linear actuators for Tuesday**
- **Maclean -> Find a location to purchase solenoids**
- **Prep Snapshot Day for Tuesday, complete logbook entry regarding snapshot afterward**
    - **General Information about team**
    - **Touch on portfolio contents, including:**
        - **Product requirements**
        - **R&D, design plans**
        - **Critical considerations**
        - **Progress in project learning**
        - **Concept sketches for different types of actuation**
        - **Schedule**